

CLAIMS

Sub 1/ 1. A rolling bearing comprising at least an outer ring  
having an outer ring raceway, an inner ring having an inner  
5 ring raceway, and rolling elements rotatably disposed  
between the outer ring raceway and the inner ring raceway,  
and selectively having a cage for evenly distributing the  
rolling elements in the rotational direction of the rolling  
elements between the outer ring raceway and the inner ring  
10 raceway, and used under lubrication with a lubricating oil  
or a grease containing a fluoro-containing polymer, or in an  
atmosphere containing a gas comprising fluorides, wherein  
the bearing comprises full complement angular ball bearing  
with a contact angle being  $10^\circ$  or more and  $45^\circ$  or less.

15

Sub 2/ 2. The rolling bearing as defined in claim 1, wherein the  
contact angle is  $15^\circ$  or more to  $30^\circ$  or less.

3. The rolling bearing as defined in claim 1 or 2,  
20 wherein the surface roughness of the outer ring and the  
inner ring is  $0.05 \mu\text{m Ra}$  and less or the ratio of the  
surface roughness of the outer ring or the inner ring  
relative to the surface roughness of the rolling element is  
6 or less.

25

006727"84667260

Sub  
a2

4. The rolling bearing as defined in any one of claims 1 to 3, wherein at least the rolling element is formed of an alloy steel with a Cr content of 7% by weight or more and 27% by weight or less, and fine carbides are uniformly  
5 dispersed on the surface.

5. The rolling bearing as defined in any one of claims 1 to 4, wherein at least the rolling element comprises oxide ceramics or has a dense nitride layer on the surface of the  
10 rolling element, and the surface roughness of the rolling element is 0.005  $\mu\text{m}$  Ra or less and the surface hardness is Hv 900 or more.

Sub  
B2

6. The rolling bearing as defined in claim 1 or 2,  
15 wherein obstacles with a mean diameter in excess of 3  $\mu\text{m}$  are not present at least on the raceway surface of the outer ring and the inner ring.

7. The rolling bearing as defined in claim 1 or 2,  
20 wherein a layer of a hardness higher than that of the raceway surface of the outer ring and the inner ring is coated at least to the surface of the rolling element.

8. A rolling bearing comprising an outer ring having an  
25 outer ring raceway, an inner ring having an outer ring

raceway, and rolling elements rotatably disposed between the  
outer ring raceway and the inner ring raceway, and  
selectively having a cage for evenly distributing the  
rolling elements in the rotational direction of the rolling  
5 elements between the outer ring raceway and the inner ring  
raceway, and used under lubrication with a lubricating oil  
or a grease containing a fluoro-containing polymer or in an  
atmosphere containing a gas comprising fluorides, wherein

the cage is formed with an advanced resin material  
10 into a circular shape, a plurality of pockets each  
containing the rolling element through an opening and  
rotatably holding the same are disposed at a predetermined  
distance in the circumferential direction, the size for the  
opening of a pocket having a weld line has a value of 93% or  
15 more for the diameter of the rolling element, and the size  
for the opening of at least two other pockets is 80% or more  
and 93% or less for the diameter of the rolling element.

9. A rolling bearing comprising an outer ring having an  
20 outer ring raceway, an inner ring having an outer ring  
raceway, and rolling elements rotatably disposed between the  
outer ring raceway and the inner ring raceway, and  
selectively having a cage for evenly distributing the  
rolling elements in the rotational direction of the rolling  
25 elements between the outer ring raceway and the inner ring

raceway, and used under lubrication with a lubricating oil or a grease containing a fluoro-containing polymer or in an atmosphere containing a gas comprising fluorides, wherein

the cage is constituted with a PTFE resin material or  
5 a PPS resin material and/or constituted by applying chamfering to inner and outer diametrical sides of the pocket and forming a through hole in the bottom of the pocket.

10 10. A rolling bearing comprising an outer ring having an outer ring raceway, an inner ring having an outer ring raceway and rolling elements rotatably disposed between the outer ring raceway, and the inner ring raceway, and selectively having a cage for evenly distributing the  
15 rolling elements in the rotational direction of the rolling elements between the outer ring raceway and the inner ring raceway, and used under lubrication with a lubricating oil or a grease containing a fluoro-containing polymer or in an atmosphere containing a gas comprising fluorides, wherein  
20 the cage is formed with an advanced resin material into a circular shape, and a plurality of pockets each containing the rolling element through an opening and rotatably holding the same are disposed at a predetermined distance in the circumferential direction, the size for the  
25 opening of the pocket having a weld line has a value of 93%

or more for the diameter of the rolling element, and the  
size for the opening of at least two other pockets is 80% or  
more and 93% or less for the diameter of the rolling element  
and the cage is constituted with a PTFE resin material or a  
5 PPS resin material and/or constituted by applying chamfering  
inner and outer diametrical sides of the pockets and forming  
a through hole in the bottom of the pocket.

add  
0.3

AW 391

006727" 84667250